

PACER
SLAVE MACHINE INTERFACE DOCUMENTATION
FOR
3M M79

DOCUMENTATION RELEASE : 880304

MACHINE INFORMATION

MACHINE TYPE	:	3M M79
REMOTES	:	NONE
SLAVE LIMITATIONS	:	NONE
TIME CODE CHANNEL	:	ANY
HIGH SPEED CODE	:	NOT APPLICABLE

MINIMUM PROGRAMMABLE RECORD PERIODS

GOOD TIME CODE	:	1 FRAMES
TACH ONLY	:	1 SECOND

NB: Shorter record periods may result in the machine NOT DROPPING OUT OF RECORD.

MACHINE BASIC DATA

COMMAND STRUCTURE:

Commands Inactive	:	+5V
Commands Active	:	0V
Command Input Type	:	OPEN COLLECTOR
EDIT/LIFTER Command	:	YES, OPTIONAL
SHUTTLE Command	:	NO
Special Features	:	

TALLY STRUCTURE:

Tally Inactive	:	+5V
Tally Active	:	0V
Tally Drive	:	TTL
RECORD Tally ?	:	YES
RUNOUT Tally ?	:	NO
EDIT Tally ?	:	NO
Special Features	:	

TACH FEATURES:

TACH Format	:	BIPHASE PULSES
TACH Frequency	:	13 Hz at 30 ips
Direction Signal	:	
TACH Output Drive	:	OPTO SENSOR
TACH Pulse Shape	:	SQUARE

SERVO FEATURES:

Servo Format	:	D.C.
FM Frequency	:	
DC Volts Minimum Speed	:	+5V
DC Volts Nominal Speed	:	0V
DC Volts Maximum Speed	:	-5V
Varispeed Range (%)	:	$\pm 40\%$
Servo Input Type	:	
Ext. Servo Cmd. Inactive	:	
Ext. Servo Cmd. Active	:	
Ext. Servo Cmd. Input Type	:	
PLL Frequency	:	19.2 KHz

MACHINE MODIFICATIONS

:

INSTALLATION INSTRUCTIONS FOR THE PACER SYNCHRONISER WITH THE 3M M79 TAPE MACHINE

A-SENSOR INSTALLATION

1. Lift deck and unscrew (Allen Type) the retaining bolt for the transport turnaround idler - remove assembly.
2. Remove cap of idler assembly and dismantle roller from mounting shaft.
3. To minimise slippage the idler should be sand blasted to break the gloss finish, in order to improve tape adhesion. Alternatively the idler can be replaced with a monothane coated idler now being supplied as standard by 3M.
4. After the above processing, select the reflective disc from the installation kit, peel off backing (do not bend disc), and fix to the bottom of the idler. Do not re-assemble the idler at this stage.
5. Remove the trim plates. Release the lifter spring from its centre spigot at the rear of the idler base position. Fit sensor assembly to machine and secure by replacing idler base on top of the sensor shim. Tighten the hex bolt of the idler base gently pulling it towards the front of the machine. Re-locate the lifter spring.
6. Remove the black deck plate by removing the two rear screws and then sliding the assembly back towards the VU panel. Feed the sensor cable through the deck casting to the rear of the machine. Do not replace the black deck plate at this time.
7. Re-assemble turnaround idler to mounting shaft and replace trim plates.

B - Logic Board Connections

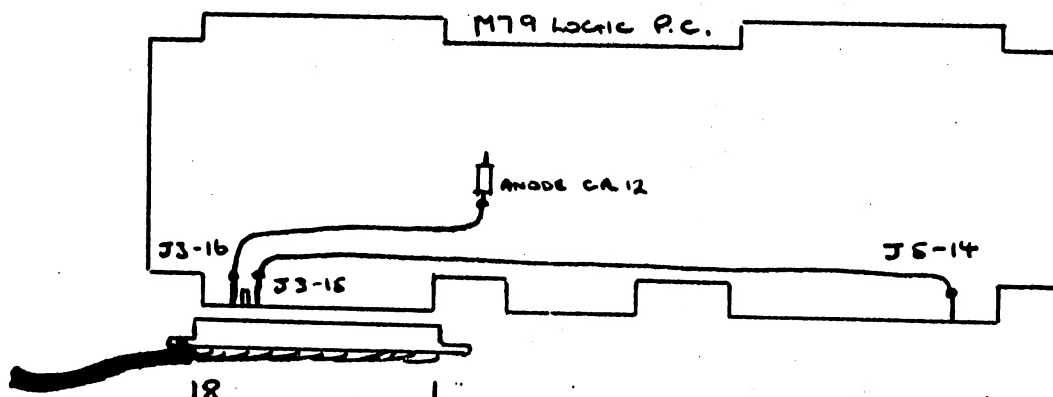
Principal connections to the M79 are made via J3 on the M79 Logic board.

First, however, 2 terminals associated with J3 used with the 3M Selectake option must be revised for use with the QLOCK; these two are J3-J15 and J3-16 which are wire additions to the logic board.

Proceed as follows:-

1. Remove logic board for ease of working
2. Remove wire linking J3-15 to K3 terminal 4 (28v to Selectake I)
3. Add wire linking J3-15 to J5-14 (Eq Hi)
4. Remove wire linking J3-16 to R52/CR56 junction (Forward command to Selectake I).
5. Add wire linking J3-16 to Anode of CR12

A 3M modification incorporating 47 ohm resistors in the mode flip-flop lines causes problems when connected with QLOCK. These resistors bridging scratched tracks immediately above J3 should be replaced with 22 ohm resistors or removed altogether. Also check that R28 is 2K7 ohm and change if necessary.



Modification to the Capstan Servo P.C. Board (Only required for SLAVE)

This card accessible with the black deck plate removed in between the reel motors, should be modified as follows:-

Remove C12 2.2uF Capacitor.

Remove C20

The machine designated the Slave must have the speed control switched to EXTERNAL. This then allows servo control of the machine by PACER. The play speed of the Slave machine is adjusted with the multiturn pot in the Pod Board. The speed of the machine can be monitored with the strobe on the capstan roller. The multiturn must be adjusted for each speed and switched as required.

When the speed control is switched to EXTERNAL on the M79 the equalisation curves of the Record/Replay electronics is set for the lowest nominal operating speed. A switch should be installed on the M79 to permit external switching of the equalisation. Seek assistance from your M79 service engineer.

3M M79 CIRCUIT DESCRIPTION

All command outputs are via buffering relays, due to the high voltage pull ups on the machine command inputs.

The servo output circuit has two link selectable wild speed potentiometers so that two machine speeds can be catered for. To align these potentiometers the machine should be switched to 'External'. Adjustment for the correct wild speed should then be made using the selected potentiometer with chase disabled. For best results monitor the difference display between the M79 and the Pacer Time-Code Generator and adjust as accurately as possible.

The Tach position reference is of a bi-phase form generated from a Tach sensor mounted under the tape idler assembly.

To adjust the input buffer amplifiers, test points 3 and 4 should be monitored and the relevant potentiometer adjusted until a signal which has a sharp rising edge is apparent the lifter defeat command can be disabled by removing the adjacent Molex Link.

REMARKS

PROGRAMME DETAILS

The programme for the 3M M79 is contained in PACER MACHINE EPROM PART NUMBER XPM010. Rev 4.06 or greater.

ATTENTION

As different machine files are contained in alternative machine ROMs do not discard your existing machine ROM when replacing it with the ROM supplied with this kit.

EPROM INSERTION

The machine file EPROM (MACHROM) must be inserted into PACER's main PCB in position IC81. Ensure that the prom orientation is as shown in Figure 1. Incorrect insertion will result in damage to the EPROM.

MACHINE SPECIFIC FILE SELECTION

The required machine file is selected from the MACHROM via the rear panel 16 position HEX switch. The switch setting is confirmed at power up via the time code standard LEDs as follows: (Where * indicates an illuminated LED)

MACHINE	HEX SWITCH POSITION	LED CONFIGURATION			
3M M79	5	24	25	29	30
		0	0	0	0

MACHINE SPECIFIC GROUP SELECTION

With Pacer systems which have the extended machine file selection facility (i.e. an 8 position DIL switch located on the rear panel), the DIL switch should be set to the positions shown in Fig. 2.

If your machine does not have the extended Machine Selection Switches then the system should be set up using the Link Configuration diagram supplied with this interface.

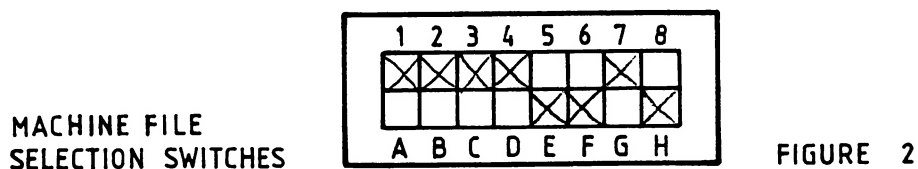
NOTE: When using certain types of machines it may be necessary to modify the Link Set Up whether you have extended machine file section or not. A list of these machines is on Appendix A.

MACHINE SPECIFIC COMMANDS & TALLIES

If your Pacer does not have the extended machine file selection facility as shown on Fig. 2, or is a machine listed in Appendix 'A' the specific COMMAND and TALLY structure is selected via PACER main PCB LINKs, See A4/QP/SPD /030

MACHINE SPECIFIC SERVO SELECTION

If your Pacer does not have the extended machine file selection facility (Fig 2), the required machine specific SERVO is selected via PACER main PCB LINKs, See A4/QP/SPD020/030.



APPENDIX A

If this interface is or this Pacer System was previously configured for one of the following machines the Link set up should be checked with the Link configuration diagram supplied with this interface.

Machines which have Command/Talley Links in a different position to standard.

(Pacer Interface SPK 640) Soundcraft 760.

(Pacer Interface SPK 500) Revox PR99.

(Pacer Interface SPK620) Stellavox TD9.

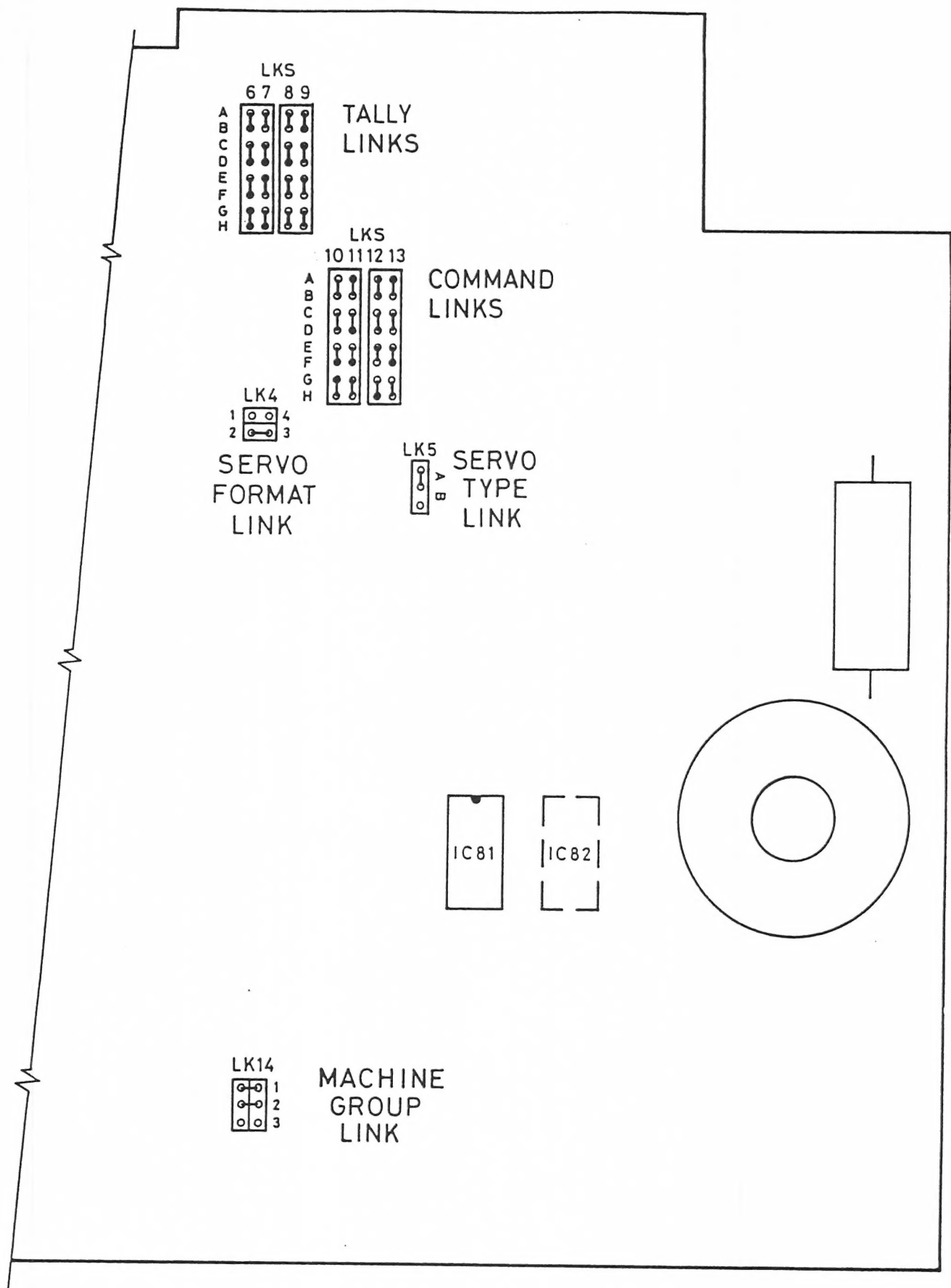


Figure 1

MODIFICATION	ISSUE	DATE	DRAWN	CHECKED	DRAWING NO.
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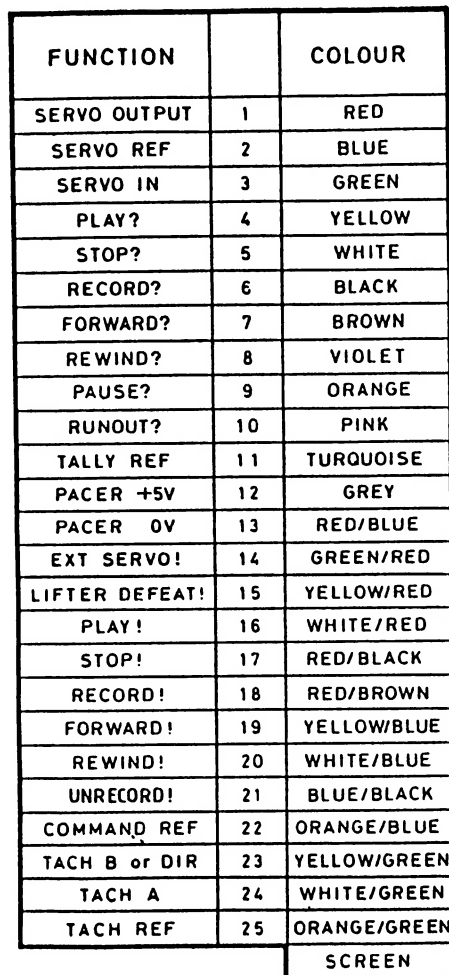


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TITLE

PACER MACHINE SPECIFIC
LINK CONFIGURATION FOR
3M M79

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CONNECTOR SPECIFICATION	No. of WAYS	TYPE	LOCKING	CABLE SPECIFICATION	No. of WAYS	LENGTH
CONNECTOR 1	25	D PLUG	SCREW	CABLE 1	25	0.5M
CONNECTOR 2	18	P.C.B. EDGE	SCREW	CABLE 2	25	2.5M
CONNECTOR 3	4	P.C.B	SCREW	CABLE 3	4	1 M
CONNECTOR 4				CABLE 4		

-6.0m

- 0.5 m



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MOD No	ISSUE	DATE		MOD No	ISSUE	DATE

TITLE	PACER SLAVE CABLE FOR 3M M79
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CERT'D.

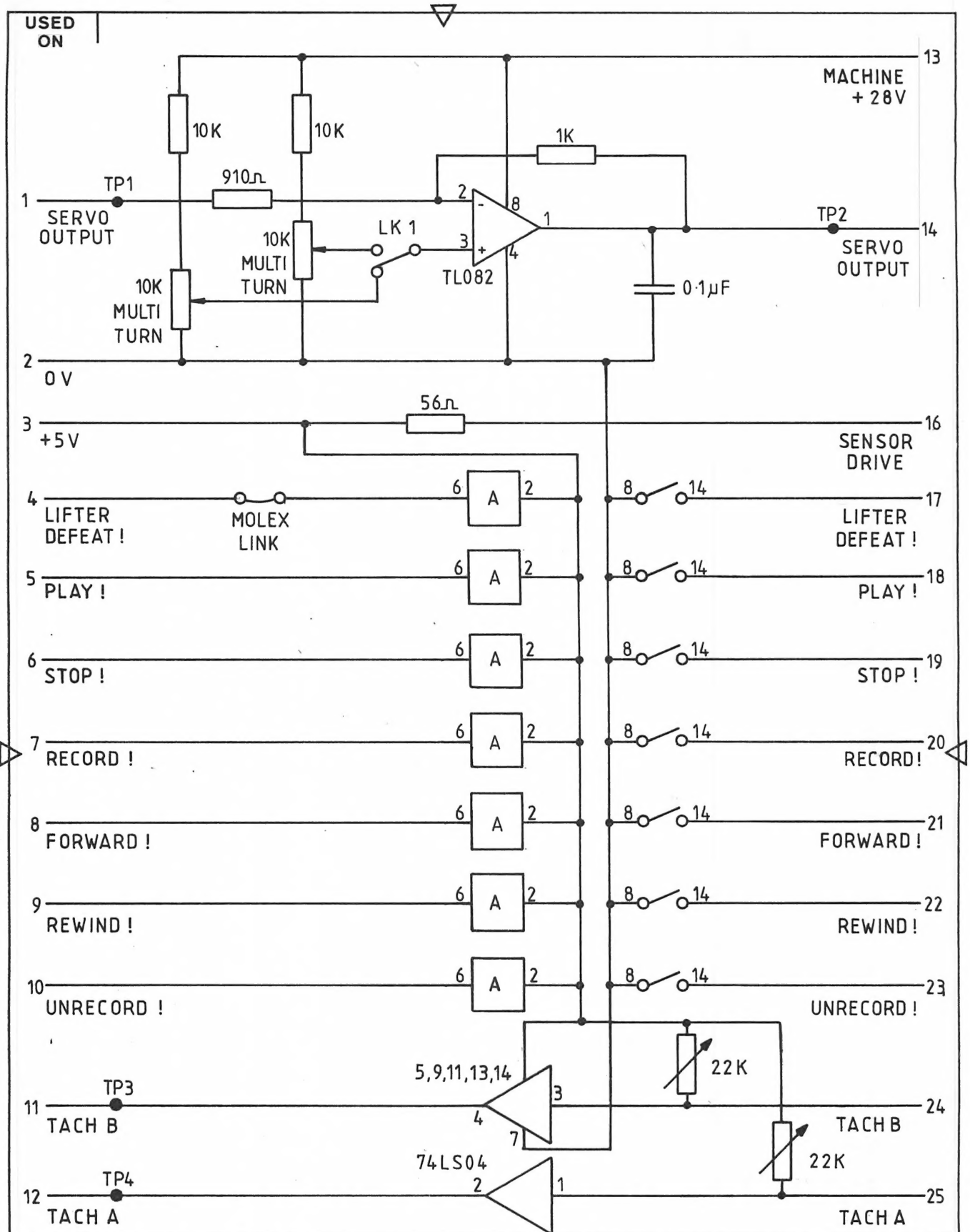
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DRAWN

NBJC.A.B.

DRAWING No.

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CERT'D.

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B

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NB/CAB



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MOD. No.

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DATE

TITLE

POD BOARD FOR
3M M79 CABLE

DRAWING No.

APR 020

A
4

ATTENTION

Some Pacer machine cables have the same
connector at both ends.

Please note that all Pacer cables have a label
consisting of a cable part number at the end which
you should connect to the rear of PACER

Please ensure that you connect it
the right way round !